

Environmental Management Services Company

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SCL*

*Burgin Project
ACT 1049/009*

October 5, 1981

RECEIVED
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DIVISION OF
OIL, GAS & MINING

Mr. Thomas N. Tetting
Engineering Geologist
Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Dear Mr. Tetting:

Enclosed please find a revised Section 3.6 of the supporting document for Sunshine Mining Company's Notice of Intention to Commence Mining at the Burgin Mine. This section addresses the revegetation plan to be used for the reclamation program to be conducted at the Burgin Mine. The revisions included in this plan were discussed with Mr. Lynn Kunzler on September 21, 1981.

It is our intention to have this revegetation plan considered in lieu of the plan originally proposed. Mr. Kunzler did not feel that this alteration of our original submittal would significantly affect the review or approval processes. Also, Mr. Kunzler indicated he could provide an independent approval of the revegetation plan in one or two days after receipt of the plan so we could consider any reclamation which may be feasible this Fall.

Since the disturbance associated with the exploration program will likely be revegetated concurrent with the mine site, I would also like your approval to use this revegetation plan for this program in lieu of the information provided in Sunshine's July 20, 1981 letter to your office.

If you or Mr. Kunzler have any questions on the proposed revision, please call me at either 303/224-2624 or 303/482-0330.

Sincerely,

Gary D. Uphoff

Gary D. Uphoff
Senior Consultant

GDU:sam

Enc.

cc: Mr. William Booth, Sunshine Mining Company
Mr. Carl Johnson, Sunshine Mining Company

This section presents the revegetation plan to be used on the areas of disturbance to be seeded this Fall (1981) as well as those areas to be reclaimed and revegetated upon abandonment. The revegetation seed mixtures and land treatments to be applied are based on the results of soil analyses and a reconnaissance plant inventory of the site made in June, 1981; and upon the professional opinions of our reclamation consultant.

The primary vegetation type of the permit area is pinyon-juniper woodland. This vegetation type provides approximately 25% groundcover, with Utah Juniper (Juniperus osteosperma) and big sage (Artemisia tridentata) predominating. Grass and forb species provide the understory in this type, but are very limited in terms of both species present and abundance. The understory primarily is limited to directly under the cover of the canopy species, and provides less than 5% cover in open areas. Cheatgrass (Bromus tectorum), junegrass (Koeleria cristata), indian rice grass (Oryzopsis hymenoides) and slender wheatgrass (Agropyron trachycaulum) were the predominant grass species identified in the understory. Other species which comprised greater than 1% relative abundance of the vegetation on the permit area included: rabbit brush (Chrysothamnus spp), pinyon pine (Pinus spp), antelope bitterbrush (Purshia tridentata) and Arizona fescue (Festuca arizonica).

Seed Mixtures - Based upon the existing vegetation information and the future land use information provided in Section 3.1, the following perennial seed mix and rates are proposed:

	Lbs. per Acre (Broadcasted)
<u>Elymus cinereus</u> - Basini Wildrye	3
<u>Oryzopsis hymenoides</u> - Indian Ricegrass	2
<u>Festuca ovina</u> - var. <u>duriuscula</u> - Hard Sheep Fescue	2
<u>Festuca rubra</u> - Red Fescue	2
<u>Agropyron spicatum</u> - var. <u>inermis</u> Beardless	
Bluebunch Wheatgrass	2
<u>Agropyron trachycaulum</u> - Slender Wheatgrass	3
<u>Agropyron desertorum</u> - Desert Wheatgrass	1
<u>Agropyron dasystachyum</u> - Thickspike Wheatgrass	4
<u>Bromus inermis</u> - Smooth Brome*	1
<u>Agropyron smithii</u> - Western Wheatgrass	4
<u>Stipa viridula</u> - Green Needlegrass	2
<u>Medicago sativa</u> - Alfalfa Medicago	1
<u>Melilotus officinalis</u> - Yellow Sweetclover	1/2

	Lbs. per Acre (Broadcasted)
Ceratoides lanata - Common Winterfat)	
Atriplex canescens - Fourwing Saltbush)	1
Atriplex confertifolia - Shadscale Saltbush)	
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TOTAL	28 1/2

Additionally, 2 lbs. of bulk seed will be added to the above mix. As many of the following species as possible will be employed depending upon their commercial availability:

Rosa woodsii - Woods Rose
Koeleria cristata - Prairie Junegrass
Agropyron riparium - Streambank Wheatgrass
Artemisia tridentata var. vasseyana - Mountain Big Sagebrush
Artemisia abrotanum - Oldman Wormwood
Poa fendleriana - Mutton Bluegrass
Stipa lettermani - Letterman Needlegrass
Cercocarpus ledifolius - Curlleaf Mountain Mahogany
Cercocarpus montanus - True Mountain Mahogany
Purshia tridentata - Antelope Bitterbrush
Symphoricarpos oreophilus - Mountain Snowberry
Agoseris glauca - Pale Agoseris
Acer grandidentatum - Bigtooth Maple
Chrysothamnus viscidiflorus - Douglas Rabbitbrush
Vicia americana - American Vetch
Amelanchier utahensis - Utah Serviceberry
Berberis repens - Oregon Grape
Helianthus annuus - Common Sunflower
Cowania mexicana - Mexican Cliffrose
Ephedra viridis - Green Mormon Tea
Rhus trilobata - Skunkbush Sumac
Prunus virginiana - Common Chokecherry
Prunus americana - American Plum
Agropyron elongatum - Tall Wheatgrass
Agropyron intermedium - Intermediate Wheatgrass
Dactylis glomerata - Common Orchardgrass

* Included to provide early spring soil holding and greening. Extremely small amount to the total proposed mix is recommended.

After the areas of disturbance have been regraded and topsoil is replaced on the areas designated to receive topsoil (to a depth of 4-6 inches), the area will be broadcast seeded mechanically or by handheld broadcaster. Seed will be covered by raking or by flex harrowing. To avoid the inhibitory affect on germination by the fertilizer salts, the areas seeded will be fertilized following emergence with 150 lbs/acre of diammonium phosphate (18-46-0) or other

commercially available fertilizer providing equivalent amounts of nitrogen and phosphorus. The fertilizer used will be defined at the time of application depending on site conditions. If it is determined that the legumes in the seed mix are not fixing adequate nitrogen for the other plants, a top-dressing of ammonium nitrate (33-0-0) will be applied later at a rate of 100 lbs/acre.

Since spring precipitation is adequate and irrigation supply is not available, irrigation will not be employed. Mulch is neither recommended nor desirable. Not only is weed-free mulch expensive, largely unavailable, and the areas which could receive mulch small and scattered, the site should be reclaimable without mulch. This is due to adequate soil moisture and precipitation and to a good supply of viable seed on the commercial market. New road cuts and fills that are to remain steeper than 2:1 will be mulched with a paper net type of mulch. Water bars and culverts will be installed where needed along the new service road to provide adequate drainage to permit access and reduce erosion. Topsoil stockpiles will be seeded with the perennial seed mix (minus the shrubs and the bulk seed supplement) and supplemental alfalfa (4 additional pounds).